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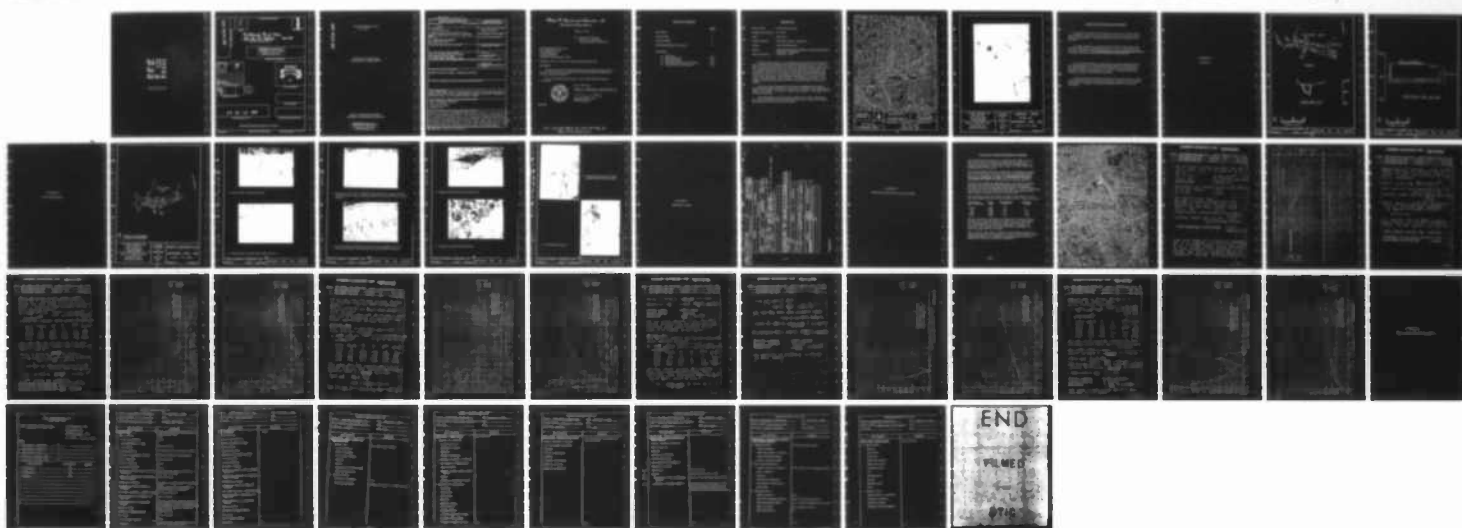
NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS  
PRITCHARDS POND DAM (..(U) CORPS OF ENGINEERS WALTHAM  
MA NEW ENGLAND DIV DEC 80

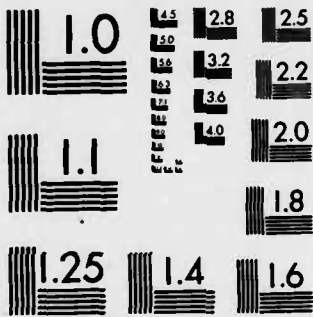
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

AD-A143 220

DTIC ACCESSION NUMBER



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PHOTOGRAPH THIS SHEET



INVENTORY

Ritchards Pond Dam

Rpt. No. CT 00033

Dec'80

DOCUMENT IDENTIFICATION

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**AD-A143 220**

**PRITCHARDS POND DAM  
CT 00033**

**NAUGATUCK RIVER BASIN  
WATERBURY, CONNECTICUT**

**PHASE I INSPECTION REPORT  
NATIONAL DAM INSPECTION REPORT**

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER  CT 00033	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Pritchards Pond Dam Naugatuck River Basin, Waterbury, Conn. NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS		5. TYPE OF REPORT & PERIOD COVERED  INSPECTION REPORT
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)  U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DEPT. OF THE ARMY, CORPS OF ENGINEERS NEW ENGLAND DIVISION, NEDED 424 TRAPELO ROAD, WALTHAM, MA. 02254		12. REPORT DATE  December 1980
		13. NUMBER OF PAGES  47
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report)  UNCLASSIFIED
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18. SUPPLEMENTARY NOTES Cover program reads: Phase I Inspection Report, National Dam Inspection Program; however, the official title of the program is: National Program for Inspection of Non-Federal Dams; use cover date for date of report.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) DAMS, INSPECTION, DAM SAFETY, Pritchards Pond Dam Naugatuck River Basin Waterbury Conn.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Pritchards Pond Dam is an embankment formed by Pearl Lake Road. It has a total length of 249 ft. and a maximum height of 8.7 ft. The exact age of the dam is not known but it is believed to be at least 100 yrs. old. There is a no longer functioning outlet box located on the right side of the dam that presumably controlled a 6-inch cast iron outlet pipe on the downstream side of the dam. There is a bar screen and 4 ft. wide over-flow spillway located in the center of the dam. This spillway drops down to a 15-inch pipe which outlets at the downstream side of the dam. The downstream side has a stone masonry wall along approx. 90 ft. of the dam's length, with varying heights.		

*Philip W. Genovese and Associates, Inc.*  
*Consulting and Design Engineers*

January 6, 1981

Re: Pritchards Pond Dam  
Waterbury, Connecticut  
Contract #DACW-33-81-C0017

The Department of the Army  
New England Division  
Corps of Engineers  
424 Trapelo Road  
Waltham, Massachusetts 02154

Attention: Mr. E. P. Gould, Project Management Division

Gentlemen:

We have inspected Pritchards Pond Dam and conducted a field survey. Our dam failure analysis concludes that the dam should be reclassified as having a low hazard potential.

We are including with this letter a short report substantiating our conclusions.



Very truly yours,

PHILIP W. GENOVESE & ASSOCIATES, INC.

*Pratap Z. Patel*  
Pratap Z. Patel, P.E.  
Project Manager

PZP/LH

*295 J. Sedwell Street, Hamden, Conn. 06514 P. O. Box 4330*  
*Telephone 288-5678 (203) Cable GENOPHIL*

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## DESCRIPTION

Name of Dam : Pritchards Pond Dam  
Identification Number : CT 00033  
Town : Waterbury  
County and State : New Haven County, Connecticut  
Stream : Hopeville Pond Brook  
Owner : Risdon Manufacturing Company, 2100 South Main Street,  
Waterbury, Connecticut  
Date of Inspection : December 3, 1980

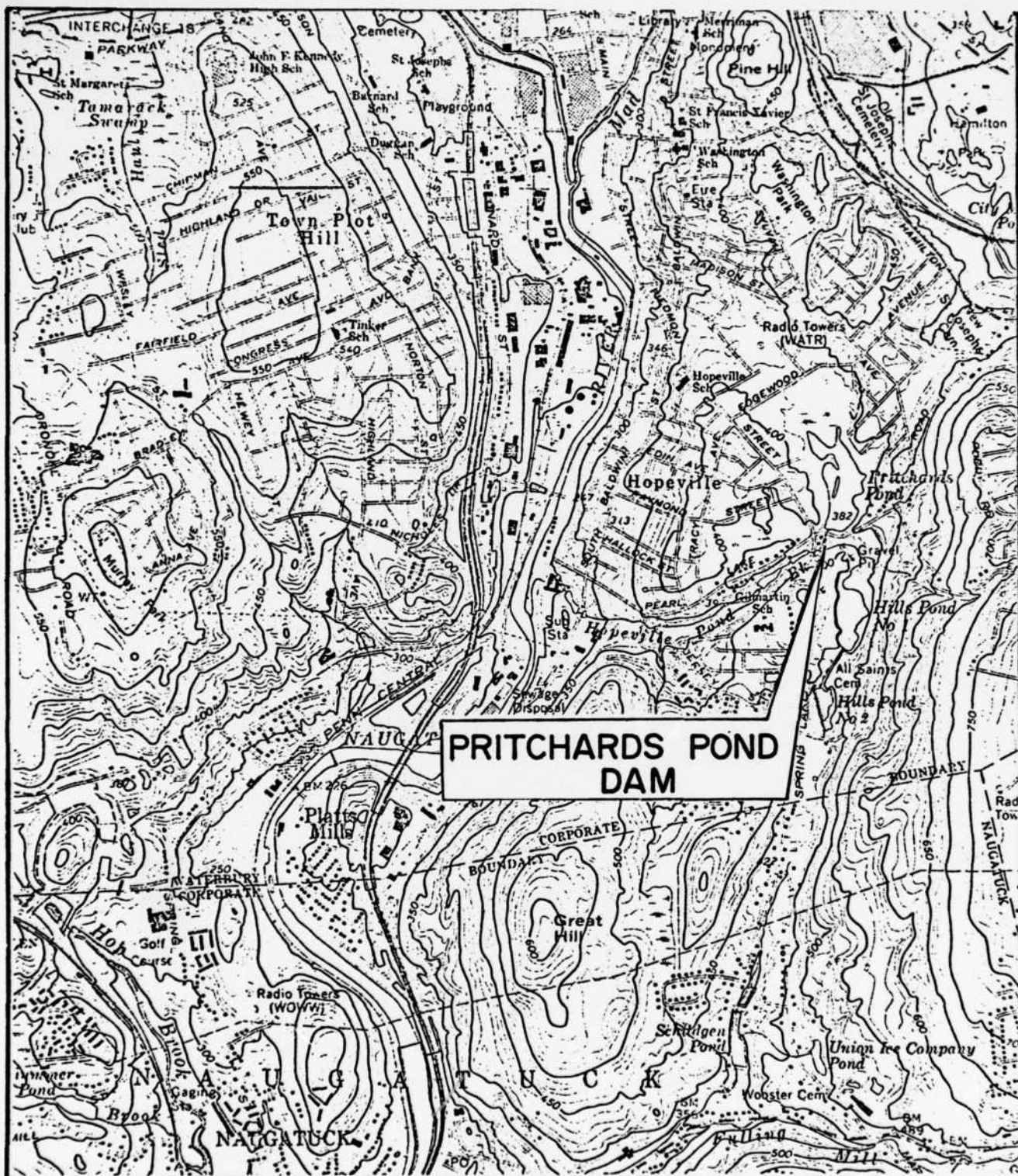
↓  
Pritchards Pond Dam is an embankment dam formed by Pearl Lake Road. It has a total length of 249 feet and a maximum height of 8.7 feet. The exact age of the dam is not known but it is believed to be at least 100 years old. There is a no longer functioning outlet box located on the right side of the dam that presumably controlled a 6-inch cast iron outlet pipe on the downstream side of the dam. There is a bar screen and 4 foot wide overflow spillway located in the center of the dam. This spillway drops down to a 15-inch pipe which outlets at the downstream side of the dam. The downstream side has a stone masonry wall along approximately 90 feet of the dam's length, with varying heights.

↓  
The dam is owned and operated by the Risdon Manufacturing Company, 2100 South Main Street, Waterbury, Connecticut. Although it once augmented the plant's water supply, it no longer is used for that purpose. Any present uses are strictly recreational.

↓  
The dam appears in good shape but requires some work. Specifically, this would include developing a functioning outlet works, spillway maintenance and removal of trees on or close to the dam.

→ [Op. 4]





USGS QUAD  
WATERBURY, CT.



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ENGINEERS - HAMDEN, CT.

U.S. ARMY ENGINEER DIV.  
NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASS.

SCALE IN FEET  
0 1000 2000 3000 4000

NATIONAL PROGRAM OF INSPECTION OF  
NON - FED DAMS  
LOCATION MAP



U.S. ARMY ENGINEER DIV.  
NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASS.

PHILIP W. GENOVESE AND  
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ENGINEERS - HAMDEN, CT.

NATIONAL  
PROGRAM  
OF  
INSPECTION  
OF  
ON-FED  
DAMS

OVERVIEW PHOTO

DECEMBER, 1980

PRITCHARDS POND DAM

HOPEVILLE POND BROOK

WATERBURY,

CONNECTICUT

[from p. 1]

## HYDROLOGIC/HYDRAULIC EVALUATION

Pritchards Pond Dam has a tributary watershed of 0.25 square miles. At the spillway crest it has a water surface area of 11 acres and a storage capacity of 14 acre-feet. The storage capacity at the top of the dam is 115 acre-feet.

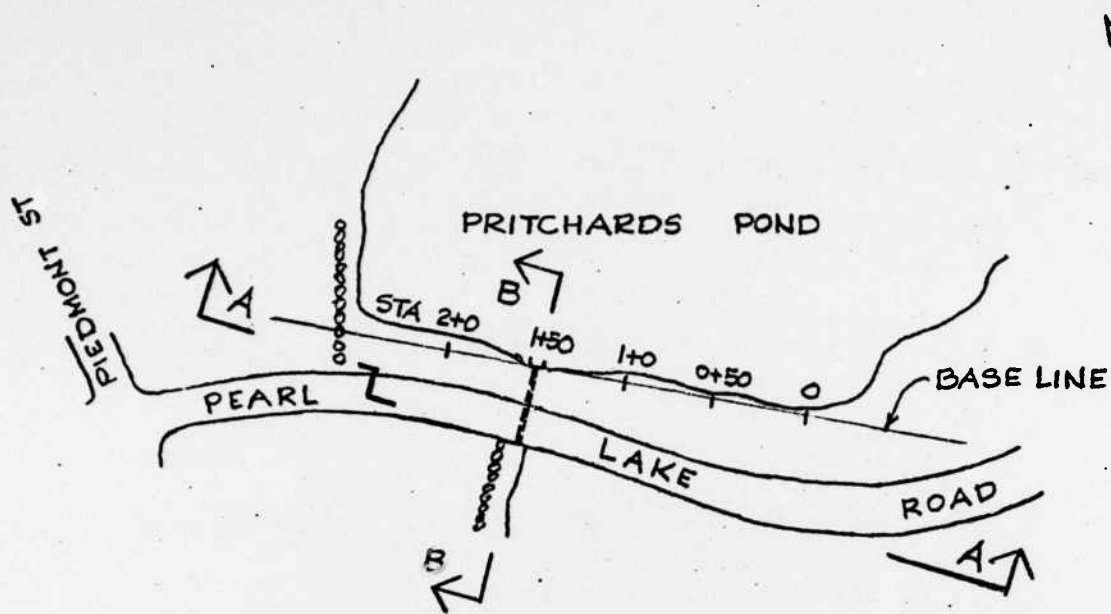
The pipe spillway has a capacity of 16 cfs with the water at the top of the dam. The maximum height of the dam is 8.7 feet. In accordance with the Corps of Engineers' Recommended Guidelines for Safety Inspection of Dams, Pritchards Pond Dam is a small dam based on storage capacity.

A dam breach analysis was made using the Corps of Engineers' "Rule of Thumb" guidance for estimating downstream dam failure hydrographs. The peak discharge from a dam breach, with the water level at the top of dam (elev. 386.7), was calculated to be 1200 cfs. The flood waters were routed for a distance of 3270 feet downstream.

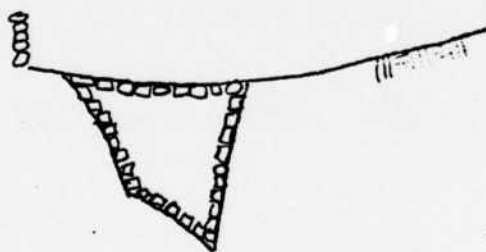
The results of this analysis indicated that the loss of life from a failure of Pritchards Pond Dam is unlikely and therefore warrants a "low" hazard classification. Appendix D provides the detailed analysis to justify this conclusion.

APPENDIX A

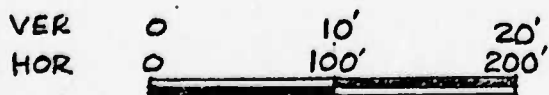
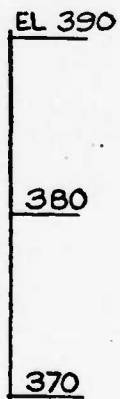
SITE PLAN



PLAN



SECTION AA



SCALE IN FEET

PHILIP W. GENOVESE & ASSOCIATES, INC.  
ENGINEERS

HAMDEN, CONNECTICUT

PRITCHARDS POND DAM (CT00033)

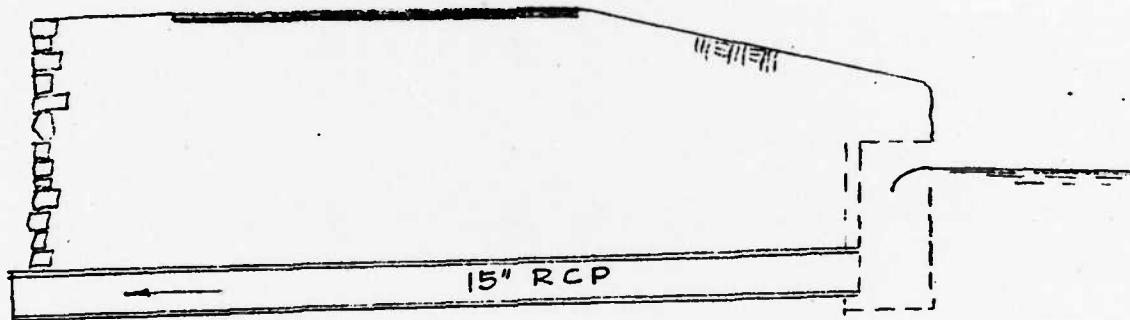
A-1

EL 390

380

370

PEARL LAKE ROAD



SECTION BB (STA 1+50)

VER 0 5' 10'  
HOR 0 10' 20'

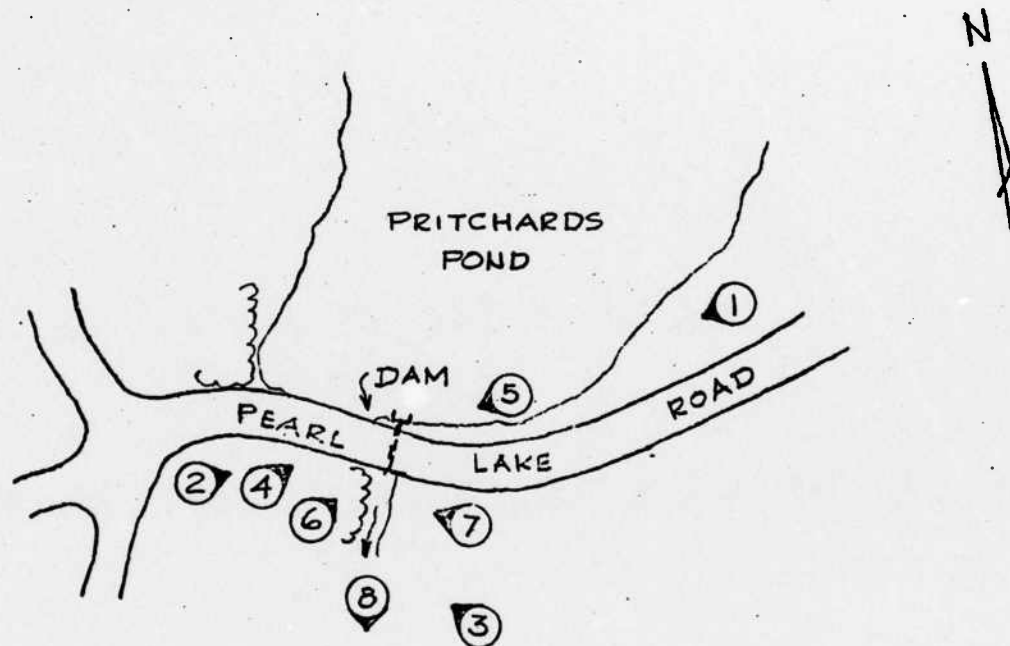
SCALE IN FEET

PHILIP W. GENOVESF. ASSOCIATES, INC.  
ENGINEERS HAMDEN, CONNECTICUT

PRITCHARDS POND DAM (CT00033)

APPENDIX B  
SITE PHOTOGRAPHS





3

REFERS TO PHOTO NUMBER,  
LOCATION AND DIRECTION

U.S. ARMY ENGINEER DIV.  
NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASS.

PHILIP W. GENOVESE AND  
ASSOCIATES, INC.  
ENGINEERS - HAMDEN, CT.

NATIONAL  
PROGRAM  
OF  
INSPECTION  
OF  
NON-FED  
DAMS

PHOTO LOCATION PLAN

PRITCHARDS POND DAM

HOPEVILLE POND BROOK

WATERBURY,

CONNECTICUT





1. Left abutment, looking along crest.



2. Right abutment, looking along downstream face.

B-2

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HAMDEN, CONNECTICUT

PRITCHARDS POND DAM (CT00033)



3. Downstream face of dam, looking towards right side of spillway channel. Note 14" diameter tree in right side of photo and clump of 5 trees in center of photo.



4. Sta 2+10 looking at downstream face of dam, blue flagging at Sta 2+00, tree stump on left, 8" diameter, tree on right of photo 11" diameter.

8-3

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PRITCHARDS POND DAM (CT00033)



5. Spillway intake structure with trash rack.



6. Spillway and outlet discharge pipes.



7. Downstream face of dam looking towards right downstream bank.



8. Downstream channel.

B-5

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ENGINEERS                      HAMDEN, CONNECTICUT

PRITCHARDS POND DAM (CT00033)

APPENDIX C  
INVENTORY FORM





APPENDIX D  
HYDROLOGIC/HYDRAULIC CALCULATIONS

## EVALUATION OF HYDRAULIC/HYDROLOGIC FEATURES

The Pritchards Pond Dam has a tributary watershed of 0.25 sq.mi and a water surface area and storage capacity at spillway level of 11 Acres and 14 Ac.Ft respectively. The maximum impoundment to the top of dam (El. 386.7 NGVD) is estimated to be 115 Ac.Ft.

The pipe spillway with drop inlet has an estimated capacity of 16 CFS with pool at top of the dam. In accordance with Table 1 of the Corps of Engineers Recommended Guidelines for Safety Inspection of Dams, the Pritchards Pond Dam is classified as "Small" in size based on storage capacity.

Utilizing the Corps of Engineers April 1978 "Rule of Thumb Guidance for Estimating Downstream Failure Hydrographs", the peak failure outflow due to dam breach is estimated to be 1200 cfs with an estimated flood depth of 3.8 Ft. immediately downstream of the dam. The flood routing was performed for peak failure outflow with pool at top of dam.

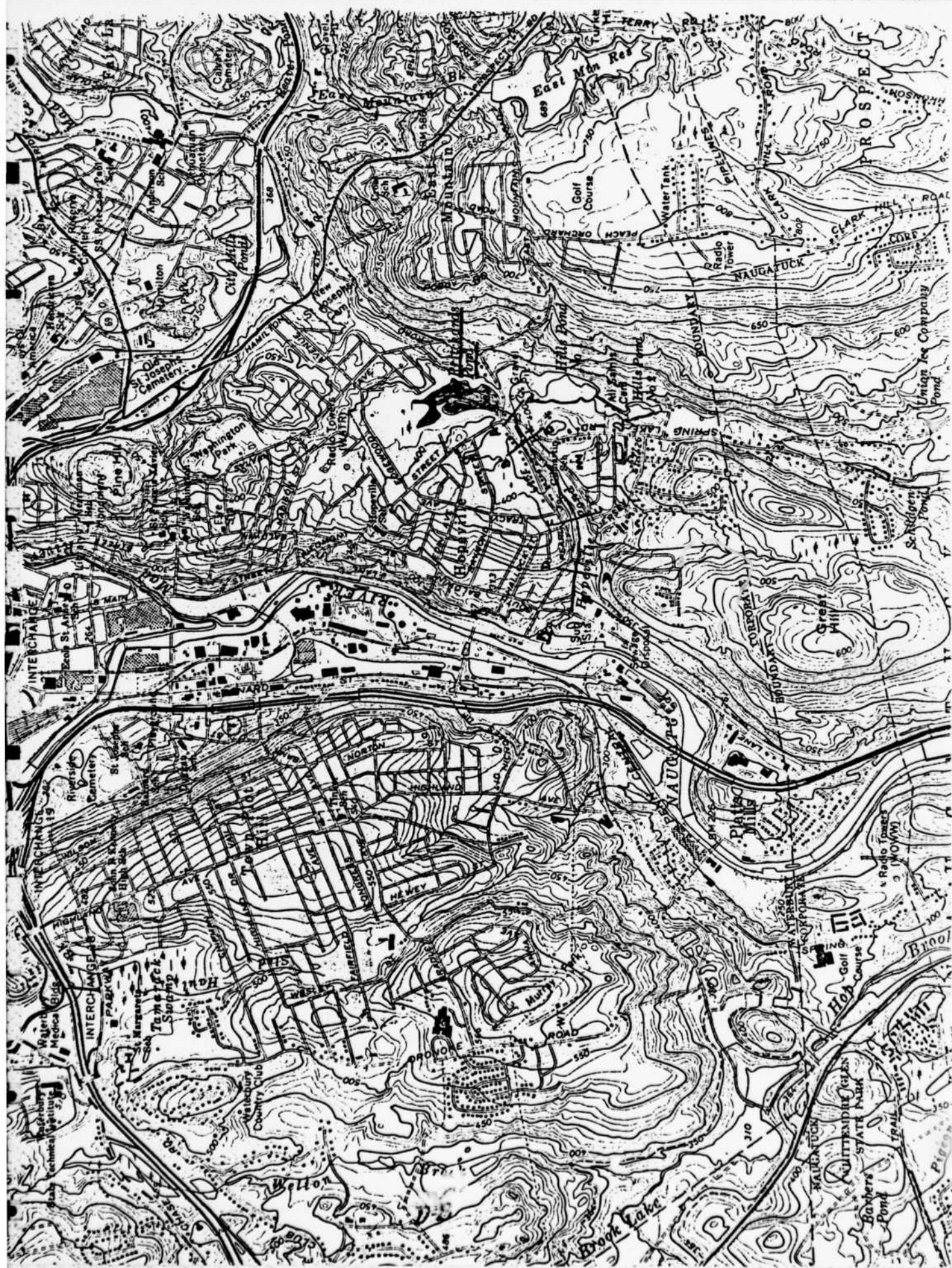
The estimated peak flow rates and peak flood depths at four sections downstream of the dam resulting from a dam failure are:

<u>D/S Section</u> (Ft. from Dam)	<u>Flow</u> (CFS)	<u>Flood Depth</u> (FT)	<u>Velocity</u> (fps)
At Dam	1200	3.8	-
170	1185	3.4	3.5
720	1148	6.2	4.1
2320	1032	4.1	4.25
3270	1021	3.2	3.9

Based on relative elevations of the houses in the vicinity of the Brook, none of them are likely to be flooded during dam failure except one house on Spring Lake Rd, located 3'4" above Brook bed which may have minor flooding. In addition, the culvert on Spring Lake Rd is inadequate to pass the peak flow of 1185 cfs.

Thus, loss of life from a failure of Pritchards Pond Dam is considered unlikely. Therefore, the dam is classified as "Low" hazard potential. This conclusion is based upon hydraulic/hydrologic analysis included in Appendix D.





# DIVERSIFIED TECHNOLOGIES CORP.

CONSULTING ENGINEERS  
NORTH HAVEN, CONN.

PROJECT NON FEDERAL DAM INSPECTION PROJECT NO. 80-13-11 SHEET 1 OF 16  
NEW ENGLAND DIVISION COMPUTED BY MA DATE 12/16/80  
PRITCHARDS POND DAM CHECKED BY EJ DATE 12/17/80

FOR THE PURPOSE OF DETERMINING PROJECT SIZE, THE  
 MAXIMUM STORAGE ELEV<sup>N</sup> IS CONSIDERED AT TOP OF  
 THE DAM.

TOP OF DAM = EL. 386.7 NGVD\*  
 TOE OF DAM = EL. 378 (15" RCP OUTLET INVERT)  
HEIGHT OF DAM = 8.7 FT. (4')

PLANIMETERING FROM USGS MAP FOR POND SURFACE AREAS —  
 AT EL. 382 (NORMAL) = 12 AC.  
 AT EL. 390 = 42 AC.

FROM STAGE-POND AREA CURVE :

POND AREA AT SPILLWAY CREST (EL. 381.8) = 11 AC.

POND AREA AT TOP OF DAM (EL. 386.7) = 30 AC.

AVERAGE POND AREA BETWEEN SPILLWAY CREST &  
 TOP OF DAM = 20.5 AC.

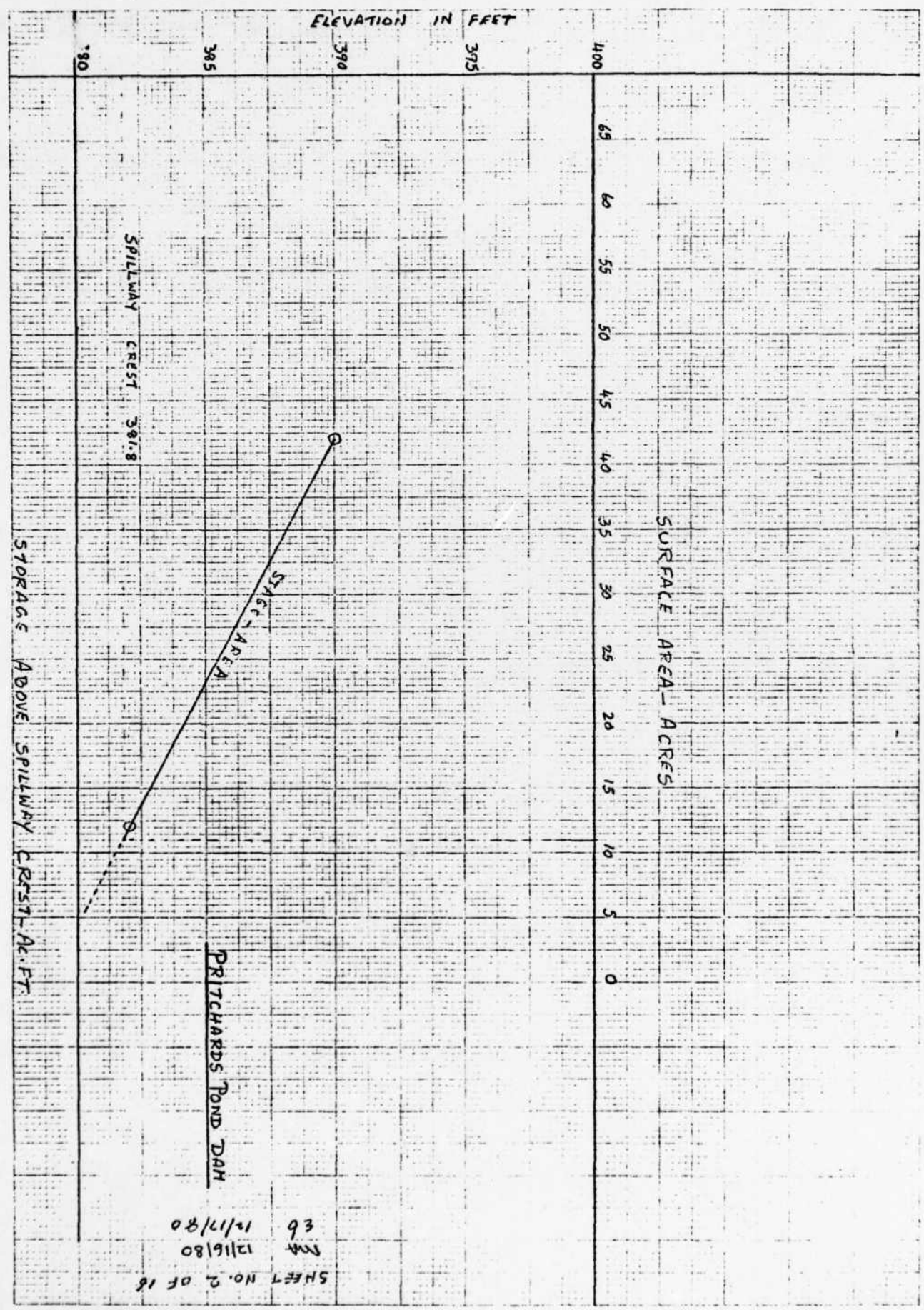
STORAGE BETWEEN SP. CREST & TOP OF DAM =  $4.9 \times 20.5$   
 = 101 AC. FT.

ESTIMATED STORAGE BELOW SP. CREST =  $\frac{1}{3} b.h.$   
 $\frac{1}{3} \times 11(381.8 - 378) = 14 \text{ AC. FT.}$

$\therefore$  MAX<sup>M</sup> IMPOUNDMENT TO TOP OF DAM =  $101 + 14$   
 = 115 AC. FT. (5)

\* THE WATER SURFACE ELEV<sup>N</sup> OF 382 MSL FOR PRITCHARDS  
 POND ON THE WATERBURY QUAD SHEET (1972) IS ASSUMED  
 TO BE ON NATIONAL GEODETIC VERTICAL DATUM (NGVD).  
 ALL OTHER ELEVATIONS ARE REFERENCED TO THIS  
 ASSUMED ELEV<sup>N</sup> AND ARE OBTAINED BASED UPON  
 INFORMATION FURNISHED BY P.W. GENOVESE & ASSOC. INC.





SHEET NO. 2 OF 18  
MAY 12/16/80  
36 12/17/80

PROJECT NON FEDERAL DAM INSPECTION PROJECT NO. 80-13-11 SHEET 3 OF 16  
NEW ENGLAND DIVISION COMPUTED BY MM DATE 12/16/80  
PRITCHARDS POND DAM CHECKED BY EB DATE 12/17/80

BREACH ANALYSIS - DOWNSTREAM FAILURE HAZARD  
BASED UPON CORPS OF ENGINEERS "RULE OF  
THUMB" GUIDANCE FOR ESTIMATING D/S DAM  
FAILURE HYDROGRAPHS

$$\text{BREACH OUTFLOW } Q_b = \frac{8}{27} \times W_b \times \sqrt{g} \times Y_0^{3/2}$$

WATER DEPTH AT TIME OF FAILURE  $Y_0 = 8.7$  FT WITH  
POOL AT TOP OF DAM

ESTIMATED BREACH WIDTH  $W_b = 40\%$  OF MID-HT LENGTH  
OF DAM  
 $= 0.4 \times 67'$

(MID-HT LENGTH IS BASED UPON P.W. GENOVESE &  
ASSOC. INC.'S DEC. 9, 1980 FIELD INFORMATION)

$$\therefore Q_b = \frac{8}{27} \times (0.4 \times 67) \times \sqrt{32.2} \times (8.7)^{3/2}$$

$$\approx 1200 \text{ CFS}$$

IT IS PRESUMED THAT THE BREACH OCCURS IN  
DEEPEST SECTION OF THE DAM. THIS SECTION  
INCLUDES THE PIPE SPILLWAY WITH DROP INLET.

$$\therefore \text{PEAK FAILURE OUTFLOW } Q_P = 1200 \text{ CFS}$$

ESTIMATED FAILURE FLOOD DEPTH  $\approx 0.44 Y_0$   
IMMEDIATELY D/S FROM DAM  $\approx 3.8$  FT.

PROJECT NON FEDERAL DAM INSPECTION PROJECT NO. 80-13-11 SHEET 4 OF 16  
NEW ENGLAND DIVISION COMPUTED BY MA DATE 12/16/80  
PRITCHARDS POND DAM CHECKED BY SB DATE 12/17/80

PERFORM DIS ROUTING OF PEAK FAILURE OUTFLOW

SECTION AA IS SELECTED 170' DIS OF THE DAM TO  
EVALUATE THE FLOOD HAZARD TO THE TWO HOUSES  
LOCATED IN BETWEEN THE BROOK AND SPRING LAKE TRS.  
USING MANNING'S EQUATION.

$$Q = \frac{1.486}{n} A R^{2/3} A^{1/2} \quad \text{WHERE } n = 0.06 \text{ ASSUMED}$$

$$= 2.724 A R^{2/3} \quad \text{AND } A = 0.012 \text{ EST. FROM USGS MAP.}$$

A AND R ARE ESTIMATED BASED ON USGS MAP INFORMATION.

ELVN	A SQ. FT.	P	R	$R^{2/3}$	Q CFS
376	0	—	—	—	—
378	105	105.1	1.0	1.0	286
379	230	154.1	1.49	1.30	817
380	415	205.2	2.02	1.60	1808

FROM STAGE-AREA AND STAGE-DISCHARGE CURVES, FOR  
SECTION AA, FOR  $Q_{P1} = 1200 \text{ CFS}$ , ELVN = 379.45 AND  
AREA = 348 SQ. FT.

VOLUME OF REACH  $V_1 = \frac{170 \times 348}{43.560} \approx 1.4 \text{ AC. FT.}$

TRIAL  $Q_{P2} = Q_{P1} \left(1 - \frac{V_1}{S}\right)$  WHERE S = STORAGE TO TOP OF DAM

$$= 1200 \left(1 - \frac{1.4}{115}\right) = 1185 \text{ CFS}$$

FOR THIS  $Q_{P2}$  THE STAGE-DISCHARGE CURVE GIVES ELVN  
= 379.4 AND AREA = 342 SQ. FT.

VOLUME OF REACH  $V_2 = \frac{170 \times 342}{43.560} \approx 1.4 \text{ AC. FT.}$

$\therefore$  PEAK OUTFLOW  $Q_{P2} = 1185 \text{ CFS}$

FLOOD DEPTH AT SECTION AA =  $379.4 - 376 = 3.4 \text{ FT.}$

FLOOD STAGE AT SECTION AA = 379.4 NGVD

AND VELOCITY AT SECTION AA =  $\frac{1185}{342} = 3.5 \text{ FPS}$

SHEET NO 5 OF 16

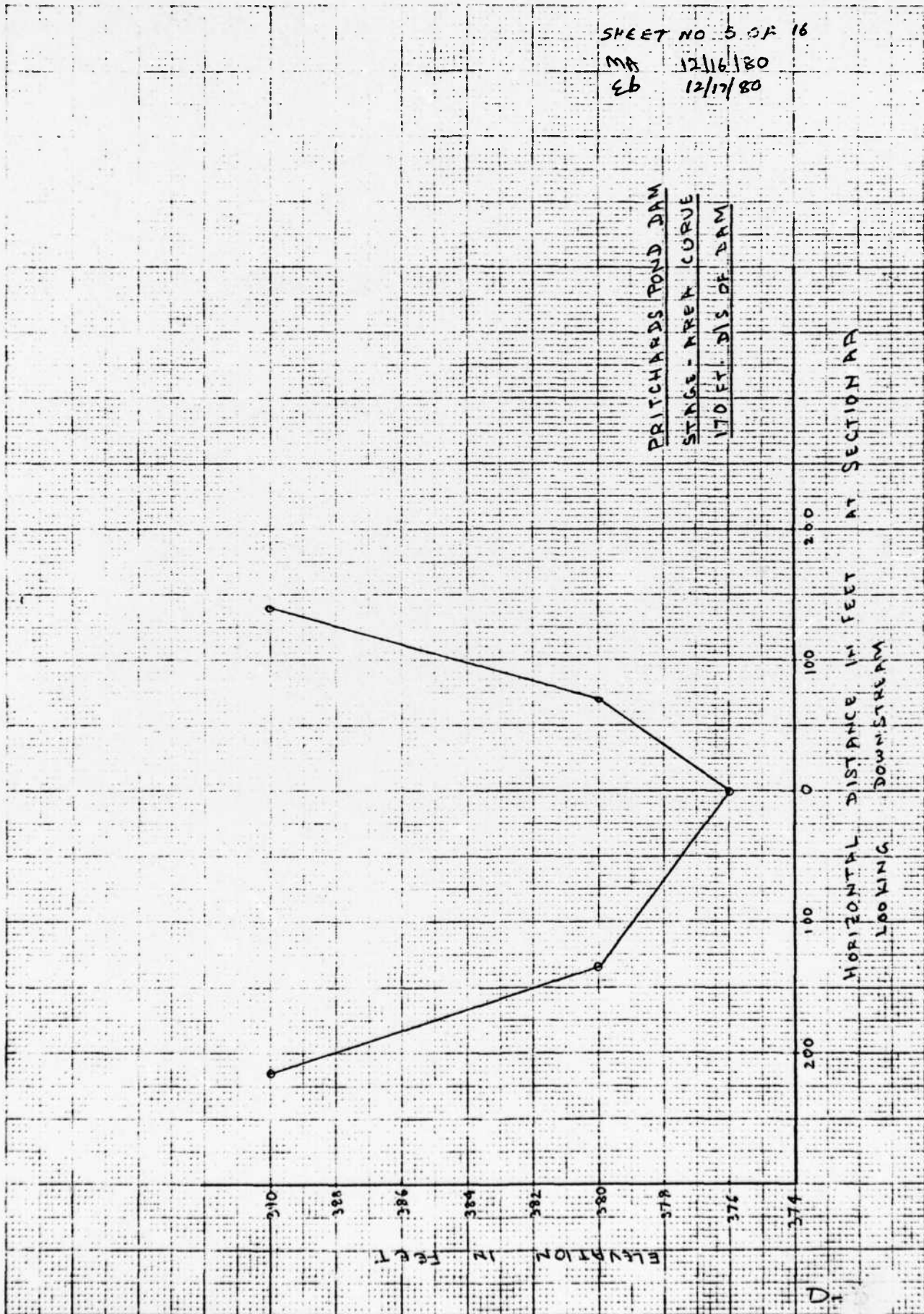
MA 12/16/80

EB 12/17/80

PRITCHARDS POND DAM

STAGE - AREA CURVE

170 FT. DIS OF DAM



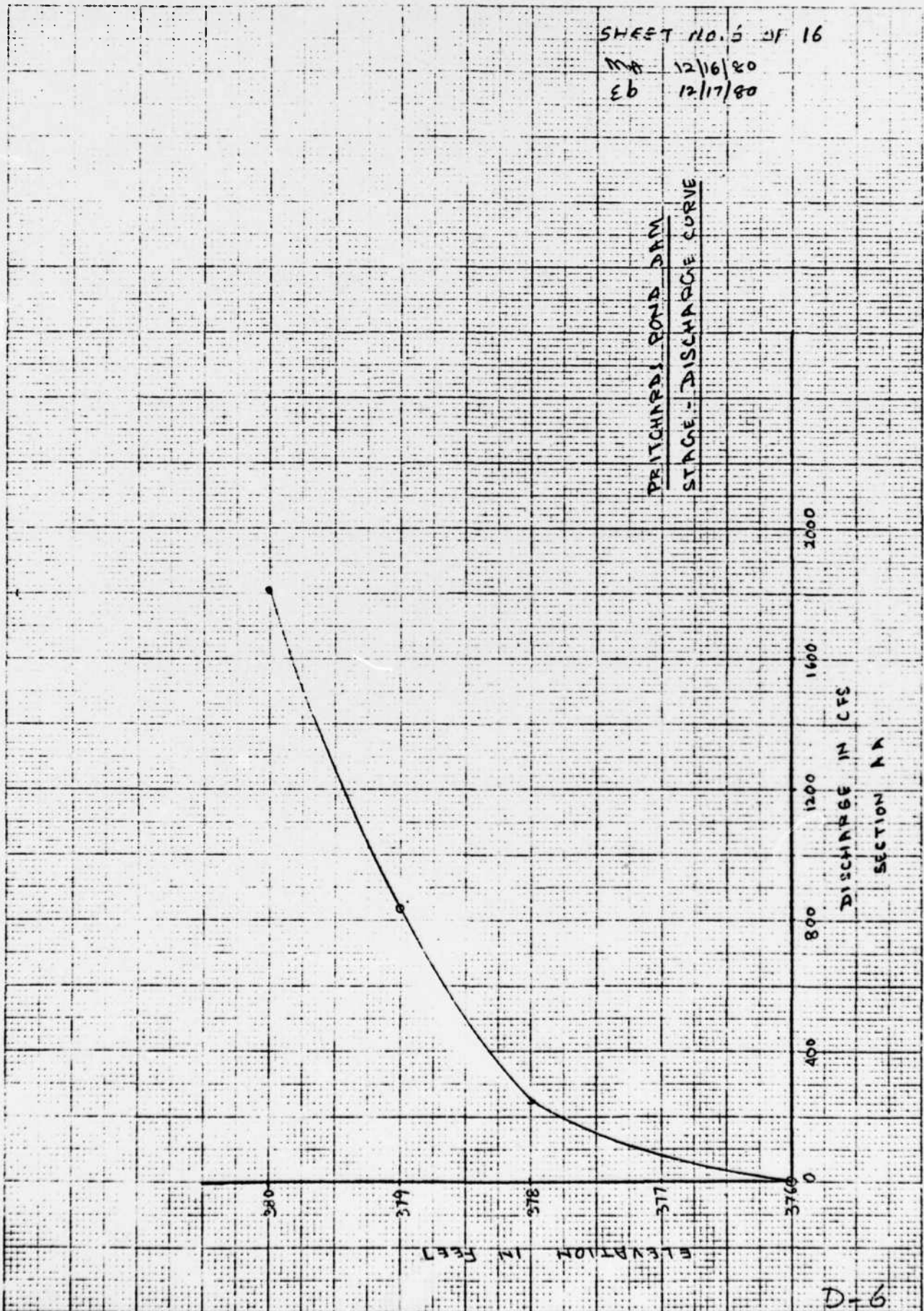


SHEET NO. 5 OF 16

MA 12/16/80

EB 12/17/80

PRITCHARDS POND DAM  
STAGE - DISCHARGE CURVE



D-6

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PROJECT NON FEDERAL DAM INSPECTION PROJECT NO. 80-13-11 SHEET 7 OF 16  
NEW ENGLAND DIVISION COMPUTED BY MA DATE 12/16/82  
PRITCHARDS POND DAM CHECKED BY EB DATE 12/17/82

OF THE TWO HOUSES, THE HOUSE AT LOWER ELEVATION IS ESTIMATED TO BE 3'4" ABOVE THE BED OF THE BROOK.

THUS, AT SECTION AA, NO SERIOUS FLOOD HAZARD IS LIKELY TO OCCUR.

IT IS HOWEVER, NOTED THAT THE CULVERT ON SPRING LAKE RD. IS INADEQUATE TO ACCOMMODATE THE ENTIRE PEAK OUTFLOW AT DAM FAILURE.

## SECTION BB

THIS SECTION IS 550' BELOW SECTION AA.  
 USING MANNING'S EQUATION

$$Q = \frac{1.486}{n} A R^{2/3} V^{1/2} \quad \text{WHERE } n = 0.08 \text{ ASSUMED (SLOW MOVING)} \\
 = 1.948 A R^{2/3} \quad A = 0.011 \text{ EST. FROM USGS MAP}$$

ELVN	A SQ. FT	P	R	R <sup>2/3</sup>	Q CFS
370	0	-	-	-	-
372	29	29.3	0.99	0.99	56
374	116	58.6	1.98	1.58	356
376	261	87.9	2.97	2.07	1051
378	464	117.1	3.96	2.50	2263

FROM STAGE-AREA AND STAGE-DISCHARGE CURVES,  
 FOR  $Q_1 = 1185$  CFS, ELVN = 376.3 AND AREA = 290 SQ. FT.  
 VOLUME OF REACH  $V_1 = \frac{550 \times 290}{43,560} \approx 3.7$  AC. FT.

$$\text{TRIAL } Q_2 = Q_1 \left(1 - \frac{V_1}{S}\right) \\
 = 1185 \left(1 - \frac{3.7}{115}\right) = 1147 \text{ CFS}$$

FOR THIS  $Q_2$ , ELVN = 376.2 AND AREA = 280 SQ. FT.



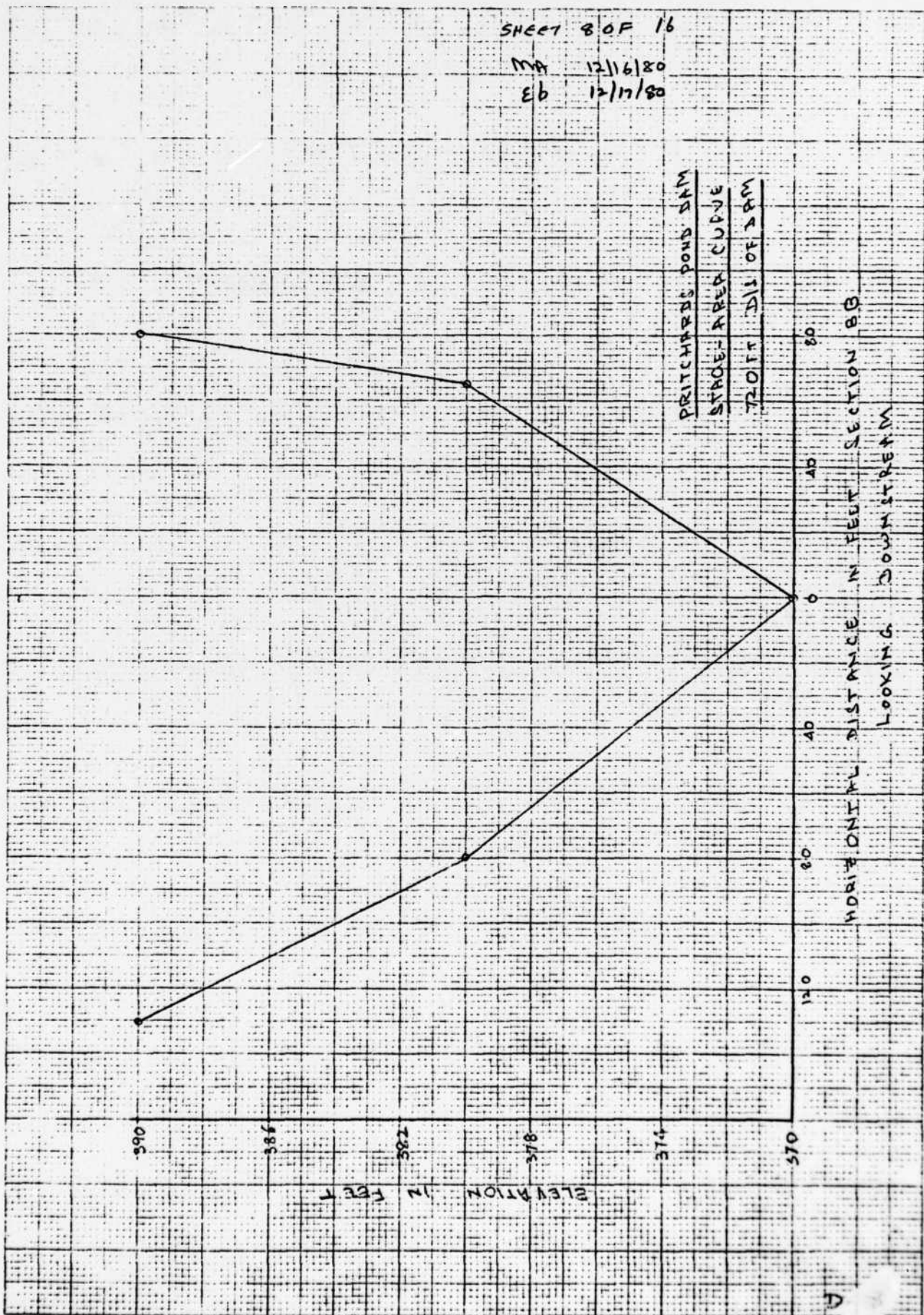
SHEET 8 OF 16

MA 12/16/80

EB 12/17/80

PRITCHARDS POND DAM  
STAGE-AREA CURVE  
TROUT DLS OF DAM

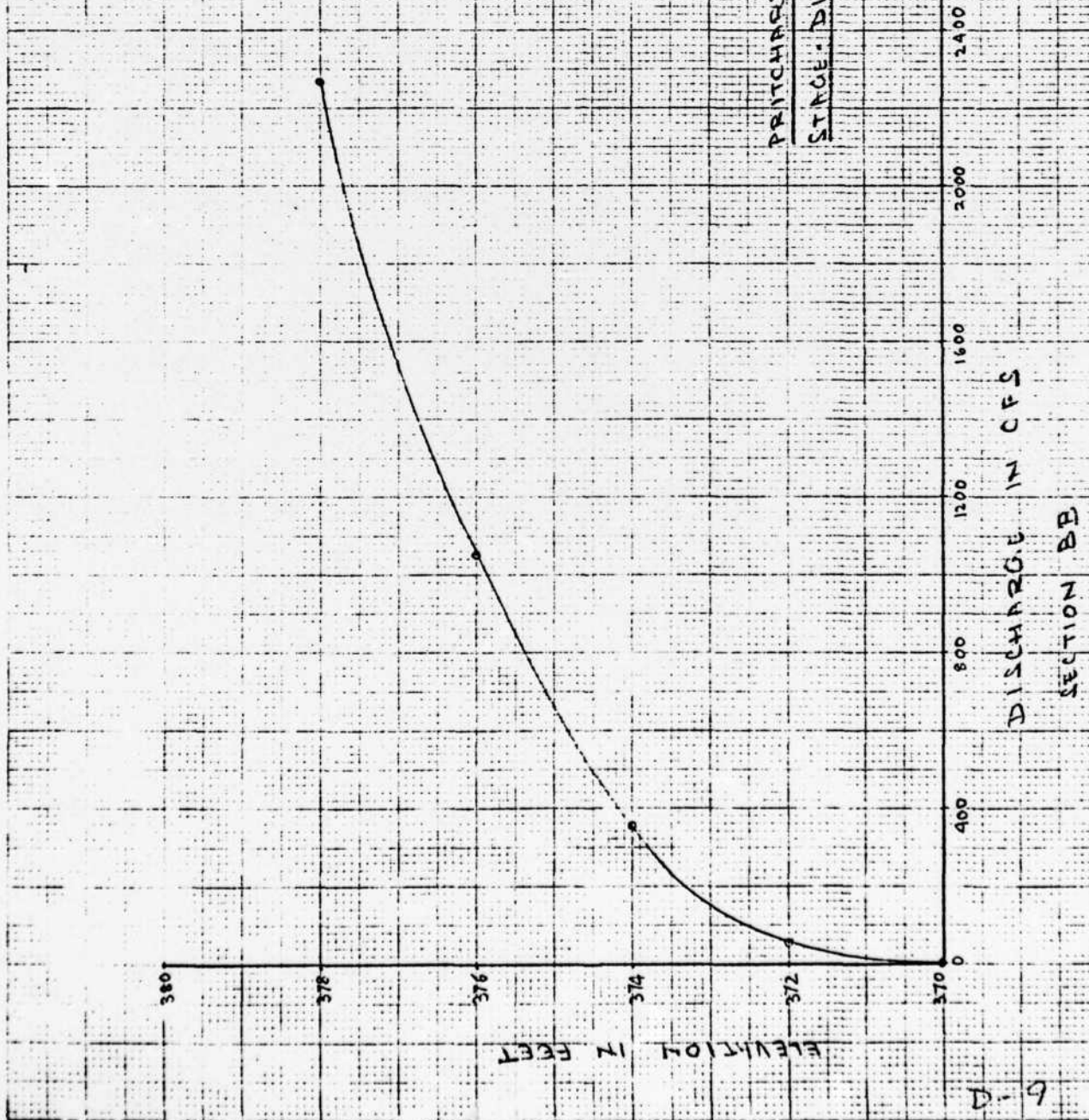
HORIZONTAL DISTANCE IN FEET SECTION BB  
LOOKING DOWNSTREAM



SHEET 9 OF 16

MA 12/16/80  
EB 12/17/80

PRITCHARDS POND DAM  
STAGE-DISCHARGE CURVE



# DIVERSIFIED TECHNOLOGIES CORP.

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NORTH HAVEN, CONN.

PROJECT NON FEDERAL DAM INSPECTION PROJECT NO. 80-13-11 SHEET 10 OF 16  
NEW ENGLAND DIVISION COMPUTED BY MA DATE 12/16/20  
PRITCHARDS POND DAM CHECKED BY SL DATE 12/17/22

$$\text{VOLUME OF REACH } V_2 = \frac{550 \times 280}{43,560} = 3.5 \text{ AC. FT.}$$

$$\text{RECOMPUTING } Q_2 = 1185 \left(1 - \frac{3.7+3.5}{2}\right) = 1148 \text{ CFS}$$

$$\text{FLOOD STAGE} = 376.2 \text{ NAVD}$$

$$\text{FLOOD DEPTH} = 6.2 \text{ FT.}$$

$$\text{VELOCITY} = \frac{1148}{280} = 4.1 \text{ FPS.}$$

THE TWO HOUSES ADJACENT TO THE SMALL POND LOCATED AT SECTION BB ARE HIGHER THAN THE ESTIMATED FLOOD STAGE; THEREFORE ARE NOT LIKELY TO BE IMPACTED BY DAM FAILURE:

## SECTION CC

THIS SECTION IS SELECTED 1600' DIS FROM SECTION BB USING MANNING'S EQUATION

$$Q = \frac{1.486}{n} A R^{2/3} S^{1/2} \quad \text{WHERE } n = 0.08 \text{ ASSUMED AND } S = 0.02 \text{ EST. FROM USGS MAP}$$

$$= 2.63 A R^{2/3}$$

ELVN	AREA SQ. FT.	P	R	$R^{2/3}$	Q CFS
334	0	—	—	—	—
336	60	60	1	1	160
338	240	120	2	1.6	1010
340	525	175	3	2.08	2870

FOR PEAK FAILURE OUTFLOW  $Q_1 = 1148 \text{ CFS}$

ELVN FROM STAGE-DISCHARGE CURVE = 338.2

AND STAGE AREA CURVE GIVES AREA = 262 SQ. FT.

FOR A REACH LENGTH OF 2000 FT.,

$$V_1 = \frac{2000 \times 262}{43,560} \approx 12 \text{ AC. FT.}$$



PROJECT NON FEDERAL DAM INSPECTION PROJECT NO. 80-13-11 SHEET 11 OF 16  
NEW ENGLAND DIVISION COMPUTED BY MT DATE 12/16/80  
PRITCHARDS POND DAM CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

$$\text{TRIAL } Q_{P_2} = Q_{P_1} \left(1 - \frac{V_1}{5}\right)$$

$$= 1148 \left(1 - \frac{12}{115}\right) = 1028 \text{ CFS}$$

FOR THIS  $Q_{P_2}$  ELVN FROM DISCHARGE CURVE  
 $= 338.05$  AND AREA =  $24359 \text{ FT.}$

$$\text{VOLUME OF REACH } V_2 = \frac{2000 \times 243}{43.560} \approx 11.2 \text{ AC.FT.}$$

$$\text{RECOMPUTING } Q_{P_2} = 1148 \left(1 - \frac{12 \times 11.2}{115}\right) = \underline{1032 \text{ CFS}}$$

FLOOD STAGE  
FLOOD DEPTH  
VELOCITY

$$= 338.1 \text{ NGVD}$$

$$= 4.1 \text{ FT.}$$

$$= \frac{1032}{243} = 4.25 \text{ FPS}$$

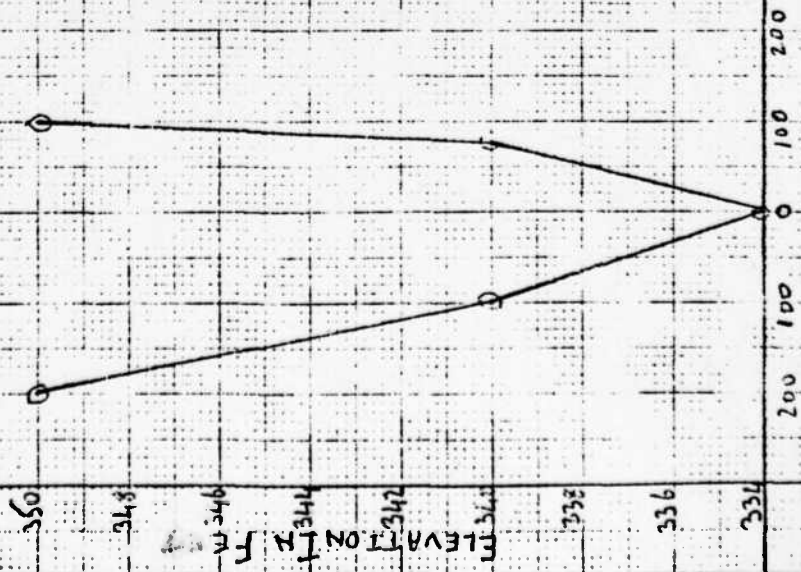
NO DAMAGE IS EXPECTED TO OCCUR  
 IN THIS REACH.

SHEET 12 OF 16

MA 12/16/80  
ED 12/17/80

PRITCHARD POND DAM  
STAGE - AREA CURVE  
2320 FT DIS OF DAM

HORIZONTAL DISTANCE IN FEET  
LOOKING DOWNSTREAM  
SECTION CC



D-12

SHEET 13 OF 16

MA 12/16/80

EB 12/17/80

PRITCHARD'S POND DAM  
STAGE-DISCHARGE CURVE

SECTION CC

DISCHARGE IN CFS

3000

2800

2600

2000

1600

1200

800

400

0

340

338

336

334

ELEVATION IN FEET

D-13

# DIVERSIFIED TECHNOLOGIES CORP.

CONSULTING ENGINEERS  
NORTH HAVEN, CONN.

PROJECT NON FEDERAL DAM INSPECTION PROJECT NO. 80-13-11 SHEET 14 OF 16  
NEW ENGLAND DIVISION COMPUTED BY MA DATE 12/16/80  
PRITCHARDS POND DAM CHECKED BY CB DATE 12/17/80

SECTION DD IS SELECTED 950' DIS OF CC  
ADJACENT TO MERRITT STREET.  
USING MANNING'S EQUATION

$$Q = \frac{1.486}{n} \times A \times R^{2/3} \times S^{1/2} \quad \text{WHERE } n = 0.06 \text{ ASSUMED}$$

$$A = 0.014 \text{ EST. FROM USGS MAP}$$

$$= 2.93 \times A \times R^{2/3}$$

ELVN	A SQ. FT	P	R	R <sup>2/3</sup>	Q CFS
323	0	—	—	—	—
324	26	52	0.5	0.63	48
325	100	100	1	1	293
326	231	154	1.5	1.31	886
327	400	200	2	1.6	1,875

FOR PEAK FAILURE OUTFLOW  $Q_1 = 1032 \text{ CFS}$ , THE STAGE  
DISCHARGE CURVE GIVES ELVN = 326.18 AND AREA  
= 270 SQ. FT.

FOR A REACH LENGTH OF 200 FT,  
VOLUME OF REACH  $V_1 = \frac{200 \times 270}{43,560} \cong 1.2 \text{ AC. FT.}$

$$\text{TRIAL } Q_2 = Q_1 \left(1 - \frac{V_1}{S}\right)$$

$$= 1032 \left(1 - \frac{1.2}{11.5}\right) = 1021 \text{ CFS}$$

FOR THIS  $Q_2$  ELVN = 326.16 AND AREA = 264 SQ. FT.  
VOLUME OF REACH  $V_2 = \frac{200 \times 264}{43,560} \cong 1.2 \text{ AC. FT.}$

∴ PEAK OUTFLOW  $Q_2 = 1021 \text{ CFS.}$

FLOOD STAGE  $\cong 326.2 \text{ NGVD}$   
FLOOD DEPTH  $\cong 3.2 \text{ FT.}$   
VELOCITY  $= \frac{1021}{264} \cong 3.9 \text{ FPS}$

THE HOUSES IN THIS VICINITY ARE 5' FT ABOVE  
THE BED OF THE BROOK.

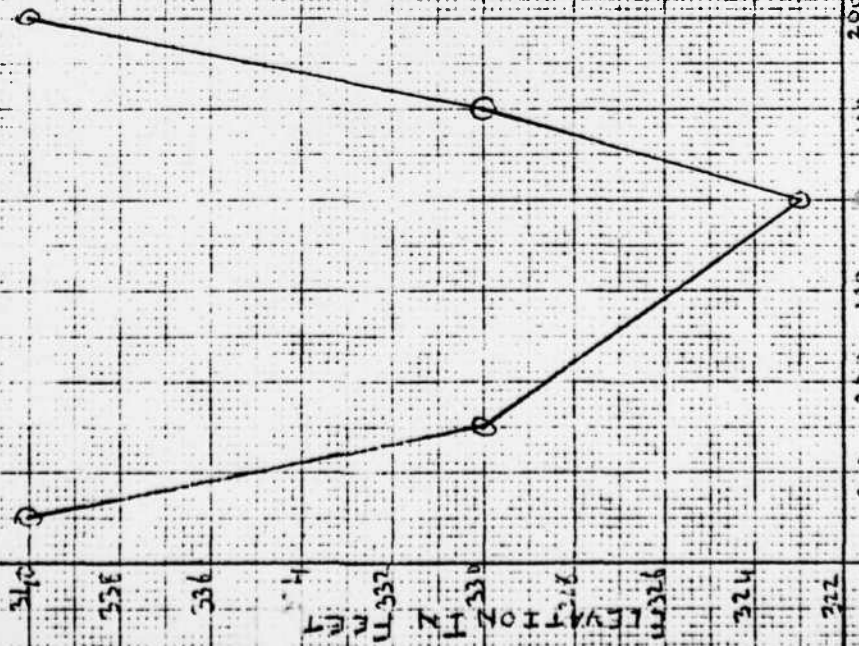


SHEET 15 OF 16

MA 12/16/80

EB 12/17/80

PRITCHARDS POND DAM  
STAGE-AREA CURVE  
3270 FT. DIS OF DAM



HORIZONTAL DISTANCE IN FEET  
LOOKING DOWNSTREAM  
SECTION DD



SHEET 16 OF 16

MA 12/16/80

EB 12/17/80

PRITCHARDS POND DAM  
STAGE DISCHARGE CURVE

DISCHARGES IN CFS SECTION DD

2400

2000

1600

1200

800

400

0

ELEVATION IN FEET  
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D-16

APPENDIX E

VISUAL CHECK LIST WITH COMMENTS

**VISUAL INSPECTION CHECK LIST  
PARTY ORGANIZATION**

PROJECT PRITCHARD's POND DAM

DATE December 3, 1980

TIME 8-10:30 a.m.

WEATHER Overcast, 33°F.

W.S. ELEV. \_\_\_\_\_ U.S. \_\_\_\_\_ DN.S

**PARTY:**

- |                                     |           |
|-------------------------------------|-----------|
| 1. <u>Walt Gancarz - Genovese</u>   | 6. _____  |
| 2. <u>Mark Ballou - Genovese</u>    | 7. _____  |
| 3. <u>Murali Atluru - DTC</u>       | 8. _____  |
| 4. <u>Richard F. Murdock - GEI</u>  | 9. _____  |
| 5. <u>Richard W. Turnbull - GEI</u> | 10. _____ |

PROJECT FEATURE	INSPECTED BY	REMARKS
1. <u>Embankment</u>	<u>All</u>	
2. <u>Outlet works</u>	<u>All</u>	
3. <u>Spillway</u>	<u>All</u>	
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		

# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM

DATE December 3, 1980

PROJECT FEATURE Dam Embankment

NAME \_\_\_\_\_

DISCIPLINE Geotechnical, Civil/Str.

NAME WG, RFM, RWT

## AREA EVALUATED

## CONDITIONS

### DAM EMBANKMENT

Crest Elevation

Earth embankment with downstream cut stone masonry wall.  
386.7

Current Pool Elevation

382.5

Maximum Impoundment to Date

Surface Cracks

None observed.

Pavement Condition

Asphalt pavement moderately cracked.

Movement or Settlement of Crest

Minor undulations of crest surface.

Lateral Movement

None observed.

Vertical Alignment

Good.

Horizontal Alignment

Good.

Condition at Abutment and at Concrete Structures

Two trees near right abutment (12 in. and 36 in. diameter).

Indications of Movement of Structural Items on Slopes

None observed.

Trespassing on Slopes

Footpath and scattered trash on upstream slope.

Sloughing or Erosion of Slopes or Abutments

Minor sloughs and erosion gullies on upstream slope of embankment.

Rock Slope Protection - Riprap Failures

No slope protection.

Unusual Movement or Cracking at or near Toes

None observed.

Unusual Embankment or Downstream Seepage

Wet area and minor seepage observed on left floodplain about 50 ft. downstream of embankment. Minor seepage from stone masonry wall, adjacent to outlet pipe.

Piping or Boils

None observed.

Foundation Drainage Features

None observed.

Toe Drains

None observed.

Instrumentation System

None.

Vegetation

Scattered trees, light brush and grass on crest and upstream slope.

# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM DATE December 3, 1980  
 PROJECT FEATURE Dike Embankment NAME \_\_\_\_\_  
 DISCIPLINE \_\_\_\_\_ NAME \_\_\_\_\_

AREA EVALUATED	CONDITION
<u>DIKE EMBANKMENT</u>	None.
Crest Elevation.	
Current Pool Elevation	
Maximum Impoundment to Date	
Surface Cracks	
Pavement Condition	
Movement or Settlement of Crest	
Lateral Movement	
Vertical Alignment	
Horizontal Alignment	
Condition at Abutment and at Concrete Structures	
Indications of Movement of Structural Items on Slopes	
Trespassing on Slopes	
Sloughing or Erosion of Slopes or Abutments	
Rock Slope Protection - Riprap Failures	
Unusual Movement or Cracking at or near Toes	
Unusual Embankment or Downstream Seepage	
Piping or Boils	
Foundation Drainage Features	
Toe Drains	
Instrumentation System	
Vegetation	E-3



# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM

DATE December 3, 1980

PROJECT FEATURE Outlet Works- Intake

NAME \_\_\_\_\_

DISCIPLINE Civil/Str.

NAME WG

AREA EVALUATED	CONDITION
<p><u>OUTLET WORKS - INTAKE CHANNEL AND INTAKE STRUCTURE</u></p> <p>a. Approach Channel</p> <p>Slope Conditions</p> <p>Bottom Conditions</p> <p>Rock Slides or Falls</p> <p>Log Boom</p> <p>Debris</p> <p>Condition of Concrete Lining</p> <p>Drains or Weep Holes</p> <p>b. Intake Structure</p> <p>Condition of Concrete</p> <p>Stop Logs and Slots</p>	<p>Not visible (under water).</p> <p>Poor.</p> <p>Clogged with debris - no longer working</p>

# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM DATE December 3, 1980  
 PROJECT FEATURE Outlet Works - Control Tower NAME \_\_\_\_\_  
 DISCIPLINE \_\_\_\_\_ NAME \_\_\_\_\_

AREA EVALUATED	CONDITION
<p><b>OUTLET WORKS - CONTROL TOWER</b></p> <p>a. Concrete and Structural</p> <p>General Condition</p> <p>Condition of Joints</p> <p>Spalling</p> <p>Visible Reinforcing</p> <p>Rusting or Staining of Concrete</p> <p>Any Seepage or Efflorescence</p> <p>Joint Alignment</p> <p>Unusual Seepage or Leaks in Gate Chamber</p> <p>Cracks</p> <p>Rusting or Corrosion of Steel</p> <p>b. Mechanical and Electrical</p> <p>Air Vents</p> <p>Float Wells</p> <p>Crane Hoist</p> <p>Elevator</p> <p>Hydraulic System</p> <p>Service Gates</p> <p>Emergency Gates</p> <p>Lightning Protection System</p> <p>Emergency Power System</p> <p>Wiring and Lighting System</p>	<p>None observed.</p>

# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM

DATE December 3, 1980

PROJECT FEATURE Outlet Works - Conduit

NAME \_\_\_\_\_

DISCIPLINE Civil/Str.

NAME WG

AREA EVALUATED	CONDITION
<p><u>OUTLET WORKS - TRANSITION AND CONDUIT</u></p> <p>General Condition of Concrete</p> <p>Rust or Staining on Concrete</p> <p>Spalling</p> <p>Erosion or Cavitation</p> <p>Cracking</p> <p>Alignment of Monoliths</p> <p>Alignment of Joints</p> <p>Numbering of Monoliths</p>	<p>6" Cast Iron Pipe protruding from d/s face of dam.</p>

# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM

DATE December 3, 1980

PROJECT FEATURE Outlet Works - Str./Channel

NAME \_\_\_\_\_

DISCIPLINE Geotechnical

NAME RFM. RWT

## AREA EVALUATED

## CONDITION

### OUTLET WORKS - OUTLET STRUCTURE AND OUTLET CHANNEL

General Condition of Concrete

Rust or Staining

Spalling

Erosion or Cavitation

Visible Reinforcing

Any Seepage or Efflorescence

Condition at Joints

GEI

Drain holes

None observed.

GEI

Channel

Banks lined with stone wall.

GEI

Loose Rock or Trees Overhanging  
Channel

Parts of stone wall bank liner are loose

GEI

Condition of Discharge Channel

Partially blocked with cluster of 5 trees  
joined at base (6"-8" diameter), and  
by several boulders which have fallen  
off left bank wall into discharge channel

# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM

DATE December 3, 1980

PROJECT FEATURE Outlet Works- Weir

NAME \_\_\_\_\_

DISCIPLINE Civil/Str, Hydraulic

NAME WG, MA

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS</u>	
a. Approach Channel	Not Visible (under water)
General Condition	
Loose Rock Overhanging Channel	
Trees Overhanging Channel	
Floor of Approach Channel	
b. Weir and Training Walls	
General Condition of Concrete	Good. trash rack is clogged with debris
Rust or Staining	
Spalling	
Any Visible Reinforcing	
Any Seepage or Efflorescence	
Drain Holes	
c. Discharge Channel	
General Condition	Good
Loose Rock Overhanging Channel	Parts of stone wall are loose
Trees Overhanging Channel	Yes - 5 trees immediately d/s of outlet.
Floor of Channel	Clear (except for trees)
Other Obstructions	No



# PERIODIC INSPECTION CHECK LIST

PROJECT PRITCHARD'S POND DAM

DATE December 3, 1980

PROJECT FEATURE Outlet works - Service Bridge

NAME \_\_\_\_\_

DISCIPLINE \_\_\_\_\_

NAME \_\_\_\_\_

AREA EVALUATED	CONDITION
<p><u>OUTLET WORKS - SERVICE BRIDGE</u></p> <p>a. Super Structure</p> <ul style="list-style-type: none"> <li>Bearings</li> <li>Anchor Bolts</li> <li>Bridge Seat</li> <li>Longitudinal Members</li> <li>Under Side of Deck</li> <li>Secondary Bracing</li> <li>Deck</li> <li>Drainage System</li> <li>Railings</li> <li>Expansion Joints</li> <li>Paint</li> </ul> <p>1. Abutment &amp; Piers</p> <ul style="list-style-type: none"> <li>General Condition of Concrete</li> <li>Alignment of Abutment</li> <li>Approach to Bridge</li> <li>Condition of Seat &amp; Backwall</li> </ul>	<p>None observed.</p>

**END**

**FILMED**

**9-84**

**DTIC**